

UNCLASSIFIED



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-479



Combat Rescue Helicopter (CRH)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

UNCLASSIFIED

Table of Contents

Sensitivity Originator	3
Common Acronyms and Abbreviations for MDAP Programs	4
Program Information	6
Responsible Office	6
References	7
Mission and Description	8
Executive Summary	9
Threshold Breaches	11
Schedule	12
Performance	14
Track to Budget	17
Cost and Funding	17
Low Rate Initial Production	27
Foreign Military Sales	28
Nuclear Costs	28
Unit Cost	29
Cost Variance	32
Contracts	36
Deliveries and Expenditures	38
Operating and Support Cost	39

Sensitivity Originator

No originator info Available at this time.

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name

Combat Rescue Helicopter (CRH)

DoD Component

Air Force

Responsible Office

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Date Assigned: March 1, 2018

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 18, 2014

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 18, 2014

Mission and Description

The Combat Rescue Helicopter (CRH) system will provide Personnel Recovery (PR) forces with a vertical takeoff and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide PR missions. CRH system activities may be required during any phase of a service/joint/coalition operation, across the full range of military operations, in any land or sea location, within the areas covered by the relevant defense planning scenarios.

The United States Air Force (USAF) has 12 Core Functions that address its unique capabilities in support of the Joint Functional Capabilities (JFC) across the full spectrum of political and military operations in all environments. The USAF has demonstrated its commitment to the Joint Force by making PR one of the 12 USAF Core Functions. The Air Force recognizes the inherent interdependence of PR, although established as an individual Core Function, with the other Core Functions as well as with the JFCs.

The CRH shall be capable of employment day or night, in adverse weather, and in a variety of threat spectrums from terrorist attacks to chemical, biological, radiological, and nuclear threats. A single pilot must be able to fly and operate all electronic/sensor weapons systems including countermeasures, leaving the second pilot to navigate, communicate, and manage mission execution. Onboard defensive capabilities will permit the CRH system to operate in an increased threat environment. An in-flight air refueling capability will provide an airborne alert capability and extend its combat mission range. The CRH system may conduct combat search and rescue airborne mission commander duties. The aircraft will be self-supporting to the maximum extent practical.

The CRH system may also conduct other collateral missions inherent in their capabilities to conduct PR, such as non-conventional assisted recovery, national emergency operations, civil search and rescue, international aid, emergency aero medical evacuation, disaster and humanitarian relief, counter drug activities, support for National Aeronautics and Space Administration flight operations, and insertion/extraction of combat forces.

A single 15 year contract was awarded to Sikorsky Aircraft Corporation on June 26, 2014. CRH is on contract to buy 113 aircraft, designated as the HH-60W. In addition to purchasing the aircraft, the contract includes development and fielding of the aircrew and maintenance training systems along with product support. The product support strategy consists of a 2-level maintenance concept (organizational and depot). During pre-operational support, the contractor will provide all levels of maintenance and material support. Field Service representatives will assist the USAF in transitioning to organic organizational maintenance. Spares and support equipment will be delivered 60 days prior to CRH fielding. The training system consists of training devices, courseware, technical data, spares and support equipment necessary to meet aircrew and maintenance training system requirements. CRH will ensure combat capability we develop, acquire, and deliver to the warfighter is affordable and supportable throughout its life cycle.

Executive Summary

Program Highlights Since Last Report

The program has made great strides, with all KPPs and Key System Attributes (KSA) projected to be met.

Program Highlights:

- A Fair Opportunity Proposal Request for additional training devices was released January 19, 2018 and proposals were received on March 5, 2018. Air Force competitively awarded a contract on September 26, 2018.
- The Program Office awarded a capability gap study on April 12, 2018
- Technology Readiness Level 7 was achieved for the radar warning receiver in May 2018
- Test Readiness Review (TRR) 1 was held October 10-12, 2018 and Airworthiness Certification for First Flight is expected in April 2019
- The EMD 1 test aircraft shipped to the Sikorsky (SAC) facility in West Palm Beach on November 12, 2018
- The EMD 2 test aircraft shipped to the SAC facility in West Palm Beach on December 17, 2018
- The EMD 3-4 aircraft, the System Demonstration Test Articles, the Airframe System Trainer, as well as various other trainers are currently in production
- The TRR for the Tactical Mission Kit System configuration 7.1 was held December 20, 2018

The program office identified increased risk since the last SAR due to the contractor no longer meeting their 6 month early schedule incentive.

- Delayed subcontractor part deliveries and minimal parts qualification delays result in first flight moving from October 2018 to May 2019
- Although first flight was delayed, supplier schedule recommits as well as software qualification re-plan support increased confidence in achieving a May 2019 first flight and September 2019 Milestone C
- Contractor is still on track to meet APB dates for Required Assets Availability/IOC

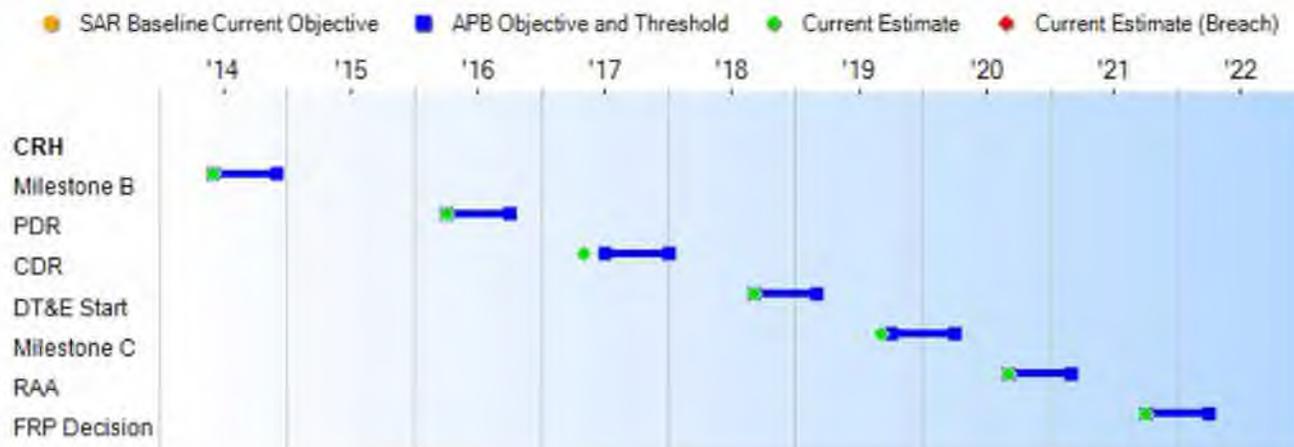
There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
March 2012	Program initiation was approved in the Material Development Decision Acquisition Decision Memorandum signed by the Acting Under Secretary of Defense for Acquisition, Technology and Logistics USD on March 2, 2012
October 2012	A Pre-Engineering and Manufacturing Development ADM was signed October 19, 2012, approving final Request For Proposal release
June 2014	A Milestone B ADM was signed on June 18, 2014, authorizing the CRH contract award and entrance into the EMD phase
June 2014	A Fixed-Price Incentive Firm at Firm Fixed Price contract for EMD was awarded to Sikorsky Aircraft Corporation on June 26, 2014
December 2014	Integrated Baseline Review conducted; action item completion and Performance Measurement Baseline established July 31, 2015
3rd Quarter FY 2015	Air Vehicle System and Training Systems Requirements Review / System Functional Review (SRR/SFR) was conducted
April 2016	Air Vehicle Preliminary Design Review was conducted
May 2016	USD(AT&L) ADM dated May 10, 2016, designated the CRH program an ACAT 1C
August 2016	Training Systems Preliminary Design Review was conducted
December 2016	The In-Process Review Air Force Review Board ADM was signed December 7, 2016 and approved purchase of five System Demonstration Test Article aircraft
May 2017	Air Vehicle Critical Design Review was conducted
September 2017	Training Systems Critical Design Review was conducted
October 2017	Product Support Business Case Analysis was approved
1st Quarter FY 2019	EMD 1 and 2 test aircraft shipped to the Sikorsky West Palm Beach facility
October 2018	Air Vehicle Test Readiness Review on First Flight Test build AV.0

Threshold Breaches

APB Breaches			Explanation of Breach
Schedule		<input type="checkbox"/>	<p>The MILCON breach is due to multiple sites requiring increased square footage, as identified through ongoing site surveys and the Training System Critical Design Review held September 18-21 2017. Size and power requirements have increased due to the HH-60W Trainers having a larger footprint than the HH-60G trainers. Additionally, in FY 2020, Kirtland Air Force Base required a second building to accommodate the increased square footage requirement. In FY 2024, Patrick Air Force Base now requires a new building due to the original targeted facility being repurposed.</p> <p>A Program Deviation Report has been finalized and was coordinated through Air Force PEO Intelligence, Surveillance and Reconnaissance & Special Operations Forces and The Assistant Secretary of the Air Force (Acquisition) on November 11, 2017</p> <p>There is no increase in program scope or risk.</p> <p>The breach will continue to be realized until re-baseline at Milestone C.</p>
Performance		<input type="checkbox"/>	
Cost	RDT&E	<input type="checkbox"/>	
	Procurement	<input type="checkbox"/>	
	MILCON	<input checked="" type="checkbox"/>	
	Acq O&M	<input type="checkbox"/>	
O&S Cost		<input type="checkbox"/>	
Unit Cost	PAUC	<input type="checkbox"/>	
	APUC	<input type="checkbox"/>	
Nunn-McCurdy Breaches			
Current UCR Baseline			
	PAUC	None	
	APUC	None	
Original UCR Baseline			
	PAUC	None	
	APUC	None	

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold	Current Estimate	
Milestone B	Jun 2014	Jun 2014 - Dec 2014	Jun 2014	
PDR	Apr 2016	Apr 2016 - Oct 2016	Apr 2016	
CDR	Jul 2017	Jul 2017 - Jan 2018	May 2017	
DT&E Start	Sep 2018	Sep 2018 - Mar 2019	Sep 2018	(Ch-1)
Milestone C	Oct 2019	Oct 2019 - Apr 2020	Sep 2019	(Ch-2)
RAA	Sep 2020	Sep 2020 - Mar 2021	Sep 2020	(Ch-3)
FRP Decision	Oct 2021	Oct 2021 - Apr 2022	Oct 2021	

Change Explanations

- (Ch-1) DT&E start changed from October 2018 to September 2018 due to start of SIL testing
- (Ch-2) Milestone C changed from July 2019 to September 2019 due to parts shortages on the production line
- (Ch-3) RAA changed from March 2020 to September 2020 to reflect delayed start of flight test

Notes

RAA is defined as delivery of eight production configuration aircraft (four mission & four training) with all required training devices, spares, support equipment, technical manuals, and sustainment support in place to support IOC.

Acronyms and Abbreviations

CDR - Critical Design Review
DT&E - Development Test & Evaluation
PDR - Preliminary Design Review
RAA - Required Assets Available
SIL - System Integration Laboratory

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold	Demonstrated Performance	Current Estimate	
Hover Performance				
A combat configured HH-60 Recap with SCL shall have an OGE hover capability at mid-mission gross weights at 6,000' PA, 35°C.	A combat configured HH-60 Recap with SCL shall have an OGE hover capability at mid-mission gross weights at 6,000' PA, 35°C.	A combat configured HH-60 Recap with SCL shall have an OGE hover capability at mid-mission gross weights at 4,000' PA, 35°C.	TBD	A combat configured HH-60 Recap with SCL shall have an OGE hover capability at mid-mission gross weights at 4,000' PA, 35°C.
Survivability				
(Objective=Threshold) HH-60 Recap aircraft shall provide vulnerability reduction at least equal to existing HH-60G vulnerability reduction features - protection for the pilot, copilot and all flight critical components or subsystems against ground-fired 7.62 mm armor piercing projectiles at 100 meters.	(Objective=Threshold) HH-60 Recap aircraft shall provide vulnerability reduction at least equal to existing HH-60G vulnerability reduction features - protection for the pilot, copilot and all flight critical components or subsystems against ground-fired 7.62 mm armor piercing projectiles at 100 meters.	HH-60 Recap aircraft shall provide vulnerability reduction at least equal to existing HH-60G vulnerability reduction features - protection for the pilot, copilot and all flight critical components or subsystems against ground-fired 7.62 mm armor piercing projectiles at 100 meters.	TBD	HH-60 Recap aircraft shall provide vulnerability reduction at least equal to existing HH-60G vulnerability reduction features - protection for the pilot, copilot and all flight critical components or subsystems against ground-fired 7.62 mm armor piercing projectiles at 100 meters.
Force Protection				
Pilot and copilot seating to 14.5 mm AP projectiles at 500 meters. Walls around the primary cabin crew member positions and the entire cabin floor to 14.5 mm AP at 500 meters.	Pilot and copilot seating to 14.5 mm AP projectiles at 500 meters. Walls around the primary cabin crew member positions and the entire cabin floor to 14.5 mm AP at 500 meters.	Pilot and copilot seating will incorporate ballistic hardening to defeat 7.62 mm AP projectiles at 100 meters. The cabin walls around the primary cabin crew member positions and the entire cabin floor will have the capability to defeat 7.62 mm AP projectiles at 100 meters.	TBD	Pilot and copilot seating will incorporate ballistic hardening to defeat 7.62 mm AP projectiles at 100 meters. The cabin walls around the primary cabin crew member positions and the entire cabin floor will have the capability to defeat 7.62 mm AP projectiles at 100 meters.
Net Ready				

Execution of all operational activities and information exchanges identified and information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA.	Execution of all operational activities and information exchanges identified and information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA.	The capability, system, and/or service shall fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and shall satisfy the technical requirements for transition to Net-Centric military operations. Issuance of an IATO or ATO by the DAA.	TBD	The capability, system, and/or service shall fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and shall satisfy the technical requirements for transition to Net-Centric military operations. Issuance of an IATO or ATO by the DAA.
Sustainment (Material Availability)				
(Objective=Threshold) MC rate of 83 percent at IOC	(Objective=Threshold) MC rate of 83 percent at IOC	MC rate of 83 percent at IOC	TBD	MC rate of 85.8 percent at IOC (Ch-1)
System Training Process				
(Objective=Threshold) HH-60 Recap shall provide operations and maintenance training systems	(Objective=Threshold) HH-60 Recap shall provide operations and maintenance training systems	HH-60 Recap shall provide operations and maintenance training systems	TBD	HH-60 Recap shall provide operations and maintenance training systems

Requirements Reference

CDD for HH-60 Recapitalization Aircraft dated July 6, 2010
 CDD Supplement for HH-60 Recapitalization Aircraft dated July 20, 2012

Change Explanations

(Ch-1) The current estimate for sustainment (Material Availability) changed from 83% to 85.8% to reflect the current status of the program

Notes

CRH referred to as HH-60 Recap in CDD.

Acronyms and Abbreviations

AP - Armor Piercing
ATO - Authorization to Operate
C - Celsius
DAA - Designated Accrediting Authority
DoDAF - Department of Defense Air Force
IATO - Interim Authorization to Operate
MC - Mission Capable
mm - Millimeter
OGE - Out of Ground Effect
PA - Pressure Altitude
SCL - Standard Combat Load

Track to Budget

RDT&E

Appn	BA	PE
Air Force	3600	05 0605229F

Project	Name
654364	Combat Rescue Helicopter

Procurement

Appn	BA	PE
Air Force	3010	04 0207229F

Line Item	Name
H060WH	Combat Rescue Helicopter

MILCON

Appn	BA	PE
Air Force	3300	01 0207229F

Project	Name
VARIOUS	Combat Rescue Helicopter Simulator

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2014 \$M			BY 2014 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	1958.8	1958.8	2154.7	1873.0	2118.6	2118.6	2002.0
Procurement	6108.4	6108.4	6719.2	5804.6	7708.7	7708.7	7073.0
Flyaway	--	--	--	4240.1	--	--	5168.4
Recurring	--	--	--	4232.9	--	--	5159.9
Non Recurring	--	--	--	7.2	--	--	8.5
Support	--	--	--	1564.5	--	--	1904.6
Other Support	--	--	--	1008.0	--	--	1228.0
Initial Spares	--	--	--	556.5	--	--	676.6
MILCON	23.7	23.7	26.1	64.3 ¹	28.9	28.9	77.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8090.9	8090.9	N/A	7741.9	9856.2	9856.2	9152.5

¹ APB Breach

Current APB Cost Estimate Reference

SCP dated June 18, 2014

Cost Notes

If an Independent Cost Estimate, Component Cost Estimate, or Program Office Estimate has been completed for the program in the previous year, list any program risks identified in the estimates, the potential impacts of the risks on program cost, and approaches to mitigate the risks.

POE was completed in 2018. Risk is assessed and addressed throughout all cost elements of the POE. In addition, the POE is based on analogous systems to determine probable real weapon system costs.

However, CRH has a Fixed Price Incentive Firm contract with target and ceiling CLINs. Contract CLIN prices are capped at the CLIN ceiling prices for EMD through LRIP Lots 1 and 2. Production Lots 3-8 are firm fixed price options with not-to-exceeds. Lots 3-8 will be negotiated but will not exceed the stated contract not-to-exceed CLIN prices

The Future Years Defense Program as reflected in the SAR, currently FY 2020-2024 funding, amends the POE as the Program Office must execute the appropriated funding.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	9	9	10
Procurement	103	103	103
Total	112	112	113

Quantity Notes

Since the 2017 SAR, the FY 2020 PB changed the quantity phasing in FY 2024 (decrease from 15 to 12) and in FY 2026 (increase from 10 to 13) for the same total production quantity of 103.

The RDT&E quantities have increased from 9 to 10 to purchase one additional test aircraft for modernization capabilities to include Distributed Aperture Infrared Countermeasures (DAIRCM). Therefore, the total program of record has increased from 112 to 113.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	1228.2	445.7	247.0	37.7	21.5	21.9	0.0	0.0	2002.0
Procurement	0.0	660.4	884.2	1015.8	876.3	854.8	851.5	1930.0	7073.0
MILCON	7.3	5.9	15.5	4.1	16.3	0.0	4.3	24.1	77.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	1235.5	1112.0	1146.7	1057.6	914.1	876.7	855.8	1954.1	9152.5
PB 2019 Total	1247.8	1143.8	1141.0	1056.6	897.8	869.3	1013.2	1735.6	9105.1
Delta	-12.3	-31.8	5.7	1.0	16.3	7.4	-157.4	218.5	47.4

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	10	0	0	0	0	0	0	0	0	10
Production	0	0	10	12	16	13	12	12	28	103
PB 2020 Total	10	0	10	12	16	13	12	12	28	113
PB 2019 Total	9	0	10	12	16	13	12	15	25	112
Delta	1	0	0	0	0	0	0	-3	3	1

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	6.2
2013	--	--	--	--	--	--	32.8
2014	--	--	--	--	--	--	333.6
2015	--	--	--	--	--	--	100.0
2016	--	--	--	--	--	--	150.3
2017	--	--	--	--	--	--	263.3
2018	--	--	--	--	--	--	342.0
2019	--	--	--	--	--	--	445.7
2020	--	--	--	--	--	--	247.0
2021	--	--	--	--	--	--	37.7
2022	--	--	--	--	--	--	21.5
2023	--	--	--	--	--	--	21.9
Subtotal	10	--	--	--	--	--	2002.0

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2014 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	6.3
2013	--	--	--	--	--	--	32.9
2014	--	--	--	--	--	--	330.1
2015	--	--	--	--	--	--	98.0
2016	--	--	--	--	--	--	145.1
2017	--	--	--	--	--	--	249.1
2018	--	--	--	--	--	--	316.9
2019	--	--	--	--	--	--	404.9
2020	--	--	--	--	--	--	220.0
2021	--	--	--	--	--	--	32.9
2022	--	--	--	--	--	--	18.4
2023	--	--	--	--	--	--	18.4
Subtotal	10	--	--	--	--	--	1873.0

Annual Funding								
3010 Procurement Aircraft Procurement, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2019	10	510.1	--	--	510.1	150.3	660.4	
2020	12	621.5	--	--	621.5	262.7	884.2	
2021	16	748.1	--	8.5	756.6	259.2	1015.8	
2022	13	601.9	--	--	601.9	274.4	876.3	
2023	12	589.9	--	--	589.9	264.9	854.8	
2024	12	625.0	--	--	625.0	226.5	851.5	
2025	15	768.0	--	--	768.0	230.0	998.0	
2026	13	695.4	--	--	695.4	236.6	932.0	
Subtotal	103	5159.9	--	8.5	5168.4	1904.6	7073.0	

Annual Funding								
3010 Procurement Aircraft Procurement, Air Force								
Fiscal Year	Quantity	BY 2014 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2019	10	449.4	--	--	449.4	132.5	581.9	
2020	12	536.9	--	--	536.9	226.9	763.8	
2021	16	633.6	--	7.2	640.8	219.5	860.3	
2022	13	499.7	--	--	499.7	227.9	727.6	
2023	12	480.2	--	--	480.2	215.6	695.8	
2024	12	498.8	--	--	498.8	180.7	679.5	
2025	15	600.9	--	--	600.9	179.9	780.8	
2026	13	533.4	--	--	533.4	181.5	714.9	
Subtotal	103	4232.9	--	7.2	4240.1	1564.5	5804.6	

Annual Funding 3300 MILCON Military Construction, Air Force		
Fiscal Year	TY \$M	
	Total Program	
2017		7.3
2018		--
2019		5.9
2020		15.5
2021		4.1
2022		16.3
2023		--
2024		4.3
2025		17.3
2026		6.8
Subtotal		77.5

Annual Funding 3300 MILCON Military Construction, Air Force	
Fiscal Year	BY 2014 \$M
	Total Program
2017	6.7
2018	--
2019	5.2
2020	13.3
2021	3.5
2022	13.5
2023	--
2024	3.4
2025	13.5
2026	5.2
Subtotal	64.3

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/18/2014	6/18/2014
Approved Quantity	18	18
Reference	Milestone B ADM	Milestone B ADM
Start Year	2019	2019
End Year	2021	2021

The Current Total LRIP Quantity is more than 10% of the total production quantity due to 18 aircraft being the minimum quantity necessary to establish an initial production base for the system as permitted by section 2400 of title 10, United States Code, subsection (b).

The current FY 2020 PB funding supports an LRIP quantity of 22 aircraft. The LRIP quantity will be addressed at the next LRIP decision at Milestone C scheduled for September 2019.

Foreign Military Sales

Notes

Price & Availability Estimate is in work to support the Letter of Request for United Arab Emirates. Air Force Security Assistance Center notified the Program Office that Australia has withdrawn their Letter of Request for Price and Availability.

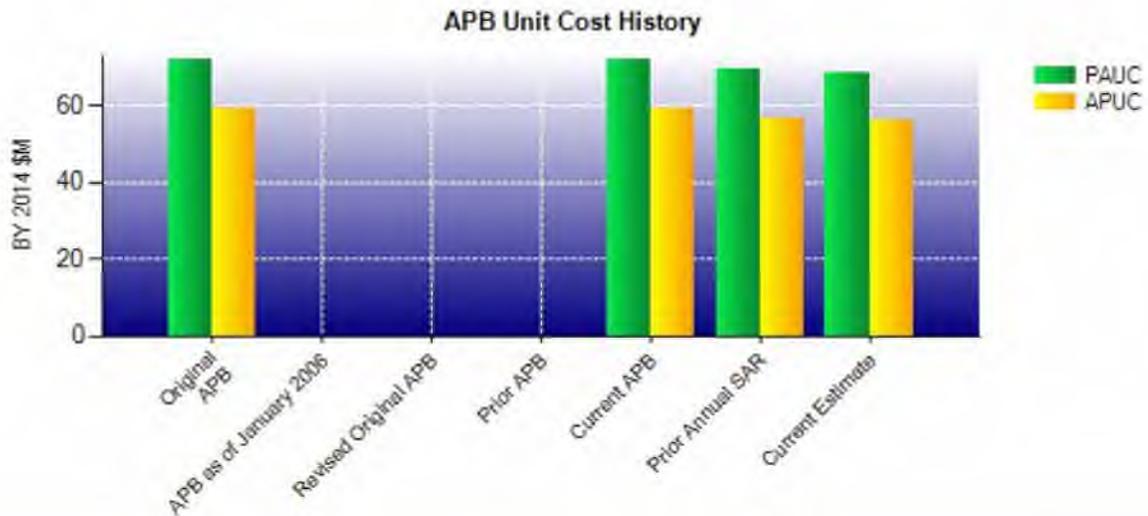
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2014 \$M	BY 2014 \$M	% Change
	Current UCR Baseline (Jun 2014 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	8090.9	7741.9	
Quantity	112	113	
Unit Cost	72.240	68.512	-5.16
Average Procurement Unit Cost			
Cost	6108.4	5804.6	
Quantity	103	103	
Unit Cost	59.305	56.355	-4.97

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2014 \$M	BY 2014 \$M	% Change
	Original UCR Baseline (Jun 2014 APB)	Current Estimate (Dec 2018 SAR)	
Program Acquisition Unit Cost			
Cost	8090.9	7741.9	
Quantity	112	113	
Unit Cost	72.240	68.512	-5.16
Average Procurement Unit Cost			
Cost	6108.4	5804.6	
Quantity	103	103	
Unit Cost	59.305	56.355	-4.97



APB Unit Cost History					
Item	Date	BY 2014 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 2014	72.240	59.305	88.002	74.842
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Jun 2014	72.240	59.305	88.002	74.842
Prior Annual SAR	Dec 2017	69.473	56.820	81.296	68.446
Current Estimate	Dec 2018	68.512	56.355	80.996	68.670

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
88.002	-1.311	-0.424	-1.349	0.185	-2.964	0.000	-1.143	-7.006	80.996

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
74.842	-1.148	0.000	-1.338	0.203	-2.635	0.000	-1.254	-6.172	68.670

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Jun 2014	N/A	Jun 2014
Milestone C	N/A	Oct 2019	N/A	Sep 2019
IOC	N/A	Sep 2020	N/A	Sep 2020
Total Cost (TY \$M)	N/A	9856.2	N/A	9152.5
Total Quantity	N/A	112	N/A	113
PAUC	N/A	88.002	N/A	80.996

Required Assets Available is used in lieu of IOC and is defined as delivery of eight production configuration aircraft (four mission & four training) with all required training devices, spares, support equipment, technical manuals, and sustainment support in place to support IOC.

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	2118.6	7708.7	28.9	9856.2
Previous Changes				
Economic	-40.9	-187.8	-0.7	-229.4
Quantity	--	--	--	--
Schedule	-14.6	-143.9	--	-158.5
Engineering	--	--	--	--
Estimating	-51.8	-240.9	+15.7	-277.0
Other	--	--	--	--
Support	--	-86.2	--	-86.2
Subtotal	-107.3	-658.8	+15.0	-751.1
Current Changes				
Economic	+11.3	+69.6	+0.4	+81.3
Quantity	+40.0	--	--	+40.0
Schedule	--	+6.1	--	+6.1
Engineering	--	+20.9	--	+20.9
Estimating	-60.6	-30.5	+33.2	-57.9
Other	--	--	--	--
Support	--	-43.0	--	-43.0
Subtotal	-9.3	+23.1	+33.6	+47.4
Total Changes	-116.6	-635.7	+48.6	-703.7
CE - Cost Variance	2002.0	7073.0	77.5	9152.5
CE - Cost & Funding	2002.0	7073.0	77.5	9152.5

Summary BY 2014 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	1958.8	6108.4	23.7	8090.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	-22.0	--	+0.1	-21.9
Engineering	--	--	--	--
Estimating	-44.6	-212.7	+12.5	-244.8
Other	--	--	--	--
Support	--	-43.2	--	-43.2
Subtotal	-66.6	-255.9	+12.6	-309.9
Current Changes				
Economic	--	--	--	--
Quantity	+35.7	--	--	+35.7
Schedule	--	--	--	--
Engineering	--	+16.9	--	+16.9
Estimating	-54.9	-26.7	+28.0	-53.6
Other	--	--	--	--
Support	--	-38.1	--	-38.1
Subtotal	-19.2	-47.9	+28.0	-39.1
Total Changes	-85.8	-303.8	+40.6	-349.0
CE - Cost Variance	1873.0	5804.6	64.3	7741.9
CE - Cost & Funding	1873.0	5804.6	64.3	7741.9

Previous Estimate: December 2017

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+11.3
One additional test aircraft for modernization to include Distributed Aperture Infrared Countermeasures capability. (Quantity)	+35.7	+40.0
Revised actual for FY 2018 Budget Authority to pay Small Business Innovative Research and (\$.01M) Major Defense Acq Program penalty for RDT&E cost overruns. (Estimating)	-11.6	-12.5
Revised FY 2019 Budget Authority to reflect Congressional Mark for developmental funding excess to need. (Estimating)	-10.9	-12.0
Revised FY 2020 estimate to reflect Air Force cut for excess to need. (Estimating)	-22.3	-25.0
Adjustment for current and prior escalation. (Estimating)	-7.5	-8.2
Revised estimate to align with the FY 2020 PB. (Estimating)	-2.8	-3.1
Revised estimate to reflect prior year approved program. (Estimating)	+0.2	+0.2
RDT&E Subtotal	-19.2	-9.3

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+69.6
Stretch-out of procurement buy due to realignment by Air Force of helicopter buy profile from FY 2024 to FY 2026. (Schedule)	0.0	+6.1
Additional FY 2020 PB funding for Mobile User Objective Systems capability. (Engineering)	+16.9	+20.9
Revised estimate to reflect Congressional mark in FY 2019. (Estimating)	-17.4	-19.8
Revised estimate to reflect Type 1 Training add to FY 2020 PB. (Estimating)	+4.6	+5.6
Revised estimate to reflect FY 2020 PB reduction for excess funds in FY 2020 and FY 2021. (Estimating)	-21.7	-25.2
Revised estimate as a result of new Sikorsky labor rates and material costs. (Estimating)	+67.0	+83.2
Revised estimate due to a change in estimating methodology which reflect contract ceiling price in FY 2019 and FY 2020. (Estimating)	+39.2	+45.0
Adjustment for current and prior escalation. (Estimating)	-4.6	-5.2
Revised estimate to align with FY 2020 PB addressing production tooling and risk reduction. (Estimating)	-93.8	-114.1
Adjustment for current and prior escalation. (Support)	-1.3	-1.5
Decrease in Other Support to due to refinement of estimate and to reflect contract ceiling prices in FY 2019 and FY 2020. (Support)	-69.4	-79.9
Increase in Initial Spares is due to refinement of estimate and to reflect contract ceiling prices in FY 2019 and FY 2020. (Support)	+32.6	+38.4
Procurement Subtotal	-47.9	+23.1

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.4
Revised estimate to align with FY 2020 PB for second Kirtland AFB NM building. (Estimating)	+13.3	+15.5

Revised estimate to align with FY 2020 PB for MILCON at Kadena, Japan and Aviano, Italy Airbases (Estimating)	+13.5	+16.3
Revised estimate due to increases in square footage and DoD Facilities Pricing Guide rate changes. (Estimating)	+1.2	+1.4
<hr/> MILCON Subtotal	<hr/> +28.0	<hr/> +33.6

Contracts

General Notes

Estimated Price at Completion if all CLIN options over 15 years are executed is \$7.9B (at target).

Contract Identification

Appropriation: RDT&E
Contract Name: Combat Rescue Helicopter
Contractor: Sikorsky Aircraft Corp.
Contractor Location: 6900 Main Street
 Stratford, CT 06614
Contract Number: FA8629-14-C-2403
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF)
Award Date: June 26, 2014
Definitization Date: June 26, 2014

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1277.6	1380.0	N/A	1484.2	1644.9	N/A	1530.4	1583.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the issuance of nineteen contract modifications covering the following: Contract Data Requirements List changes, changes to Government Furnished Equipment/Information, exercising of three options (two for live fire assets and one for System Demonstration Test Articles Aircraft), the incorporation of other negotiated Contract or Engineering Change Proposals (Airworthiness, Tech Manual Contract Requirements changes, Training Systems Requirements Analysis updates, fire extinguisher requirements, and Fielding Needs Updates), ordering of a Mission Planning System (MPS) study, updating of the Statement of Work for platform specific changes, issuing an un-definitized change order for the MPS (reflected as a ceiling increase only, until negotiated and definitized), and a small number of de-obligations for stop work requests.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2018)	-99.8	-79.1
Previous Cumulative Variances	-32.8	-20.9
Net Change	-67.0	-58.2

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to primarily, G&A rates (\$38M), Operations' Sustaining Engineering (\$19M), and Operations' Aircraft Build (\$14K).

The unfavorable net change in the schedule variance is due to Operations' SDTA-1 Final Assembly, Operations' SDTA-2 Final Assembly, and Operations' SDTA-3 Avionics Equipment Material.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	10	0	10	0.00%
Production	103	0	103	0.00%
Total Program Quantity Delivered	113	0	113	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	9152.5	Years Appropriated	8
Expended to Date	796.6	Percent Years Appropriated	53.33%
Percent Expended	8.70%	Appropriated to Date	2347.5
Total Funding Years	15	Percent Appropriated	25.65%

The above data is current as of March 11, 2019.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	September 21, 2018
Source of Estimate:	POE
Quantity to Sustain:	113
Unit of Measure:	Aircraft
Service Life per Unit:	27.00 Years
Fiscal Years in Service:	FY 2020 - FY 2054

Sustainment Strategy

The Product Support Strategy consists of a 2-level maintenance concept (organizational and depot). During pre-operational support, the contractor will provide all levels of maintenance and material support. Field Service representatives will assist the USAF in transitioning to organic organizational maintenance. Spares and support equipment will be delivered 60 days prior to CRH fielding. The training system consists of training devices, courseware, technical data, spares and support equipment necessary to meet aircrew and maintenance training system requirements. CRH will ensure combat capability we develop, acquire and deliver to the warfighter is affordable and supportable throughout its life cycle.

- Primary Aerospace Vehicle Inventory (PAI): 91
- Mission Capability Goal: 83%
- Materiel Availability Goal: 67.4%
- Mean Time Between Critical Failure Goal: > 28.5 hours
- Mean Time Between Maintenance Goal: > 0.30 hours
- Mean Down Time Goal: > 20.8 hours
- Service Life: 8,000 hour life

Antecedent Information

(As of May 1, 2014)

- HH-60G
- Total Quantity: 97
- PAI: 87
 - Note: 19 Operational Loss Replacement (OLR) aircraft are not included, currently being acquired. Anticipate additional HH-60G aircraft retirements due to excessive flying hours.
 - The HH-60Us are not included
- Mission Capability Rate: 73.4%
- Materiel Availability Rate: 57.1%
- Mean Time Between Critical Failure Rate: 15.4 hrs
- Mean Time Between Maintenance Rate: 0.18 hrs
- Mean Down Time Rate: 21.4 hrs

CRH costs shown in comparison to the antecedent system, HH-60G, reflect estimated average annual cost per primary authorized aircraft (PAA). The HH-60G was normalized for comparison to the CRH to reflect programmatic differences and estimating methodologies. The cost per PAA of the HH-60G was projected using Air Force Total Ownership Cost (AFTOC) system historical data. Costs for the HH-60G were normalized to reflect the CRH assumption of 360 annual flying hours per aircraft. This cost comparison excludes Indirect Support costs for the HH-60G antecedent system because the costs captured in the AFTOC database are incomplete and do not provide a meaningful comparison to

those estimated for CRH.

Annual O&S Costs BY2014 \$M		
Cost Element	CRH	
	Average Annual Cost Per Aircraft	HH-60G (Antecedent) Average Annual Cost Per Aircraft
Unit-Level Manpower	2.887	3.500
Unit Operations	1.241	1.000
Maintenance	2.335	2.600
Sustaining Support	0.570	0.300
Continuing System Improvements	0.752	0.600
Indirect Support	1.575	--
Other	--	--
Total	9.360	8.000

CRH average annual cost per aircraft assumes full funding of program requirements (unconstrained), whereas the HH-60G reflects projected actual costs reported in the AFTOC system (constrained). Also, the cost of extending the life of the HH-60G is not reflected. The comparison is not adjusted for any capability differences, costs savings or efficiencies that may exist between the two systems.

Item	Total O&S Cost \$M			
	CRH		HH-60G (Antecedent)	
	Current Development APB Objective/Threshold	Current Estimate		
Base Year	24529.5	26982.5	23722.2	N/A
Then Year	40982.5	N/A	40743.2	N/A

Equation to Translate Annual Cost to Total Cost

The CRH O&S annual unitized cost of \$9.36M is calculated based on a steady state PAA fleet of 91 aircraft beginning in FY 2030 and ending in FY 2044.

Total O&S cost includes ramp up (FY 2020-2029), steady state (FY 2030-FY 2044), and ramp down (FY 2045-2054) years.

O&S Cost Variance		
Category	BY 2014 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2017 SAR	23674.1	
Programmatic/Planning Factors	-327.8	Extended Interim Supply Support (ISS) into FY 2025. Removed FY 2025 Flying Depot Level Repairable (DLR) support costs from O&S and added FY 2025 Interim Supply Support (ISS) to Production estimate. Updated Milestone C and FRP dates.
Cost Estimating Methodology	255.3	Changes in Air Force Cost Analysis Agency model for retirement phasing and updated software estimate from Army model to bottoms up approach.

Cost Data Update	131.3	AFTOC Updates for Analogous Maintenance data and inflation indices.
Labor Rate	-93.1	Lower composite labor rates (AFI 65-503 tables) and decreased Advisory and Assistance Services (A&AS) contractor rate for Kirtland maintenance.
Energy Rate	82.4	Increased Defense Logistics Agency (DLA) Aviation Fuel Composite Rate.
Technical Input	0.0	
Other	0.0	
Total Changes	48.1	
Current Estimate	23722.2	

Disposal Estimate Details

Date of Estimate:	September 21, 2018
Source of Estimate:	POE
Disposal/Demilitarization Total Cost (BY 2014 \$M):	29.3

TY\$M: 77.7 (Total Cost)